



SEQUENCE LISTING

<110> LEWIN, DAVID
STEWART, TIMOTHY P.

<120> GENES ASSOCIATED WITH OBESITY AND METHODS
FOR USING THE SAME

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<140> 10/608865

<141> 2003-06-27

<150> 09/691,439

<151> 2000-10-18

<150> 60/160,246

<151> 1999-10-19

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<170> PatentIn Ver. 2.1

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ccatggatgg atggtggaag ctgcagacta tcagcccctg tgtgtcctgt ttttctgtat 1080
tcatttatgc ttatgataaa gtgtaacttg taaattaggc aaaggaagaa ataaacaact 1140
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agt tac aca gta tat tat aat cat tct aat gtg agt tat tta cta tta 96
 Ser Tyr Thr Val Tyr Tyr Asn His Ser Asn Val Ser Tyr Leu Leu Leu

20										25										30										
gta gtt gtt tat ttc ttc ctt tgc cta att tac aag tta cac ttt atc	144																													
Val Val Val Tyr Phe Phe Leu Cys Leu Ile Tyr Lys Leu His Phe Ile																														
35 40 45																														
ata agc ata aat gaa tac aga aaa aca gga cac aca ggg gct gat agt	192																													
Ile Ser Ile Asn Glu Tyr Arg Lys Thr Gly His Thr Gly Ala Asp Ser																														
50 55 60																														
ctg cag ctt cca cca tcc atc cat ggg gga ctc ctg aga tgt acc cgg	240																													
Leu Gln Leu Pro Pro Ser Ile His Gly Gly Leu Leu Arg Cys Thr Arg																														
65 70 75 80																														
tgt aga gta aga gga gcg ctc tag ctt cct agg gat gct cta aca aaa	288																													
Cys Arg Val Arg Gly Ala Leu Leu Pro Arg Asp Ala Leu Thr Lys																														
85 90 95																														
tac tac aac taa gtg gct caa aac aac aga aat gtc tgt ctg tct cac	336																													
Tyr Tyr Asn Val Ala Gln Asn Asn Arg Asn Val Cys Leu Ser His																														
100 105 110																														
act gct ggc agc cag atg tcg tgt gtg tgt gtg tgt gtg tgt gtg tgt	384																													
Thr Ala Gly Ser Gln Met Ser Cys Val Cys Val Cys Val Cys Val Cys																														
115 120 125																														
gtg tgt gtg tgt gtg tgt gta gat ctt ctc tag agc tct aaa ata ggc	432																													
Val Cys Val Cys Val Cys Val Asp Leu Leu Ser Ser Lys Ile Gly																														
130 135 140																														
ttc tca cag ctt ccc gaa gtg ttt ggt cct tcc tga gat gga aga tgg	480																													
Phe Ser Gln Leu Pro Glu Val Phe Gly Pro Ser Asp Gly Arg Trp																														
145 150 155																														
ttg gtc atc ttc att cag tgt ctg cat ttc atc gcc cct ctg tgt gtg	528																													
Leu Val Ile Phe Ile Gln Cys Leu His Phe Ile Ala Pro Leu Cys Val																														
160 165 170																														
tct ctt ttt aca agg aca ctg tgg gtc att cac ctg ggg cct cct tac	576																													
Ser Leu Phe Thr Arg Thr Leu Trp Val Ile His Leu Gly Pro Pro Tyr																														
175 180 185																														
ctc agt gac ctc aat gac cct gga aat cat tct ctc taa aaa gac aac	624																													
Leu Ser Asp Leu Asn Asp Pro Gly Asn His Ser Leu Lys Asp Asn																														
190 195 200																														
act tgg agg tac ggg gac tac tat agc atg tta tag aaa gct atg tca	672																													
Thr Trp Arg Tyr Gly Asp Tyr Tyr Ser Met Leu Lys Ala Met Ser																														
205 210 215																														
cgt gac ttt cgt gag aat aac agc gtt ata aac ctc atg agc ttc aag	720																													
Arg Asp Phe Arg Glu Asn Asn Ser Val Ile Asn Leu Met Ser Phe Lys																														
220 225 230																														
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Thr Ile Met Ile Pro Val Leu His Val Thr Ala Arg																														
235 240 245																														

agt gtc agc tga ggc acc tta aag ggt tac agt gta tct gag caa aca	816
Ser Val Ser Gly Thr Leu Lys Gly Tyr Ser Val Ser Glu Gln Thr	
250 255 260	
cca gtt gtt gct ggg cag ctc caa ccc ctg tgt ggc cca ggc act tca	864
Pro Val Val Ala Gly Gln Leu Gln Pro Leu Cys Gly Pro Gly Thr Ser	
265 270 275	
ggg ggc aac taa ctc att agg gag gca taa acg cca agc caa cgt gat	912
Gly Gly Asn Leu Ile Arg Glu Ala Thr Pro Ser Gln Arg Asp	
280 285 290	
tgg tta cag ctc cac agc tgt tta ttt ggc ctc ttc cca ttg gag agt	960
Trp Leu Gln Leu His Ser Cys Leu Phe Gly Leu Phe Pro Leu Glu Ser	
295 300 305	
ccc tag tta tat aaa att ttg gct gcc atg gat tgg ttg agt ttg ttt	1008
Pro Leu Tyr Lys Ile Leu Ala Ala Met Asp Trp Leu Ser Leu Phe	
310 315 320	
tgg ttt tct tta ata tac aaa tct att taa agt agt tta tat cac ata	1056
Trp Phe Ser Leu Ile Tyr Lys Ser Ile Ser Ser Leu Tyr His Ile	
325 330 335	
taa taa ata aat aaa tct ttt tta aaa aaa ctt ttt tgt ttt caa atc	1104
Ile Asn Lys Ser Phe Leu Lys Lys Leu Phe Cys Phe Gln Ile	
340 345 350	
atg caa agc taa ggt cac gta gga gaa aga cca tga ctg tgt gcc ttt	1152
Met Gln Ser Gly His Val Gly Glu Arg Pro Leu Cys Ala Phe	
355 360 365	
tta tgc ttt ggg tct ggt ctc cat ttt aat act tta aca cta tgg tca	1200
Leu Cys Phe Gly Ser Gly Leu His Phe Asn Thr Leu Thr Leu Trp Ser	
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1 5 10 15	
tta aag tat taa aat gga gac cag acc caa agc ata aaa agg cac aca	96

Leu	Lys	Tyr		Asn	Gly	Asp	Gln	Thr	Gln	Ser	Ile	Lys	Arg	His	Thr	
				20					25						30	
gtc	atg	gtc	ttt	ctc	cta	cgt	gac	ctt	agc	ttt	gca	tga	ttt	gaa	aac	144
Val	Met	Val	Phe	Leu	Leu	Arg	Asp	Leu	Ser	Phe	Ala		Phe	Glu	Asn	
				35					40						45	
aaa	aaa	gtt	ttt	tta	aaa	aag	att	tat	tta	ttt	att	ata	tgt	gat	ata	192
Lys	Lys	Val	Phe	Leu	Lys	Lys	Ile	Tyr	Leu	Phe	Ile	Ile	Cys	Asp	Ile	
				50					55					60		
aac	tac	ttt	aaa	tag	att	tgt	ata	tta	aag	aaa	acc	aaa	aca	aac	tca	240
Asn	Tyr	Phe	Lys		Ile	Cys	Ile	Leu	Lys	Lys	Thr	Lys	Thr	Asn	Ser	
			65						70					75		
acc	aat	cca	tgg	cag	cca	aaa	ttt	tat	ata	act	agg	gac	tct	cca	atg	288
Thr	Asn	Pro	Trp	Gln	Pro	Lys	Phe	Tyr	Ile	Thr	Arg	Asp	Ser	Pro	Met	
			80					85					90			
gga	aga	ggc	caa	ata	aac	agc	tgt	gga	gct	gta	acc	aat	cac	gtt	ggc	336
Gly	Arg	Gly	Gln	Ile	Asn	Ser	Cys	Gly	Ala	Val	Thr	Asn	His	Val	Gly	
		95					100					105				
ttg	gcg	ttt	atg	cct	ccc	taa	tga	gtt	agt	tcc	cac	ctg	aag	tgc	ctg	384
Leu	Ala	Phe	Met	Pro	Pro			Val	Ser	Ser	His	Leu	Lys	Cys	Leu	
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ggc	cac	aca	ggg	gtt	gga	gct	gcc	cag	caa	caa	ctg	gtg	ttt	gct	cag	432
Gly	His	Thr	Gly	Val	Gly	Ala	Ala	Gln	Gln	Gln	Leu	Val	Phe	Ala	Gln	
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Ile	His	Cys	Asn	Pro	Leu	Arg	Cys	Leu	Ser		His	Phe	Asn	Val	Lys	
	140					145						150				
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Gln	Leu	Pro	Asn	Val	Val	Gln	Val	Ser		Ser	Lys	Ser		Ser	Ser	
	155					160						165				
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Ser	Ile	Thr	Cys	Tyr	Ser	Ser	Pro	Arg	Thr	Ser	Lys	Cys	Cys	Leu	Phe	
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Arg	Glu	Asn	Asp	Phe	Gln	Gly	His		Gly	His		Gly	Lys	Glu	Ala	
			200						205					210		
cca	ggt	gaa	tga	ccc	aca	gtg	tcc	ttg	taa	aaa	gag	aca	cac	aca	gag	720
Pro	Gly	Glu		Pro	Thr	Val	Ser	Leu		Lys	Glu	Thr	His	Thr	Glu	
				215							220					
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Gly Arg	Asn Ala Asp Thr Glu	Arg	Pro Thr Ile Phe His	
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Leu Arg Lys Asp Gln Thr Leu Arg Glu Ala Val Arg Ser Leu Phe				
240	245		250	
agc tct aga gaa gat cta cac aca cac aca cac aca cac aca cac aca	864			
Ser Ser Arg Glu Asp Leu His Thr His Thr His Thr His Thr His Thr				
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cac aca cac aca cac acg aca tct ggc tgc cag cag tgt gag aca gac	912			
His Thr His Thr His Thr Thr Ser Gly Cys Gln Gln Cys Glu Thr Asp				
270	275		280	
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cat ccc tag gaa gct aga gcg ctc ctc tta ctc tac acc ggg tac atc	1008			
His Pro Glu Ala Arg Ala Leu Leu Leu Leu Tyr Thr Gly Tyr Ile				
305	310		315	
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Ser Gly Val Pro His Gly Trp Met Val Glu Ala Ala Asp Tyr Gln Pro				
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ctg tgt gtc ctg ttt ttc tgt att cat tta tgc tta tga taa agt gta	1104			
Leu Cys Val Leu Phe Phe Cys Ile His Leu Cys Leu Ser Val				
335	340		345	
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Asn Ser His Asn Asp Tyr Asn Ile Leu Cys Asn Phe Val Ser Asn				
365	370		375	
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35 40 45
Ile Ser Ile Asn Glu Tyr Arg Lys Thr Gly His Thr Gly Ala Asp Ser
50 55 60
Leu Gln Leu Pro Pro Ser Ile His Gly Gly Leu Leu Arg Cys Thr Arg
65 70 75 80
Cys Arg Val Arg Gly Ala Leu Leu Pro Arg Asp Ala Leu Thr Lys Tyr
85 90 95
Tyr Asn Val Ala Gln Asn Asn Arg Asn Val Cys Leu Ser His Thr Ala
100 105 110
Gly Ser Gln Met Ser Cys Val Cys Val Cys Val Cys Val Cys Val Cys
115 120 125
Val Cys Val Cys Val Asp Leu Leu Ser Ser Lys Ile Gly Phe Ser Gln
130 135 140
Leu Pro Glu Val Phe Gly Pro Ser Asp Gly Arg Trp Leu Val Ile Phe
145 150 155 160
Ile Gln Cys Leu His Phe Ile Ala Pro Leu Cys Val Ser Leu Phe Thr
165 170 175
Arg Thr Leu Trp Val Ile His Leu Gly Pro Pro Tyr Leu Ser Asp Leu
180 185 190
Asn Asp Pro Gly Asn His Ser Leu Lys Asp Asn Thr Trp Arg Tyr Gly
195 200 205
Asp Tyr Tyr Ser Met Leu Lys Ala Met Ser Arg Asp Phe Arg Glu Asn
210 215 220
Asn Ser Val Ile Asn Leu Met Ser Phe Lys Thr Ile Met Ile Pro Val
225 230 235 240
Leu His Val Thr Ala Arg Ser Val Ser Gly Thr Leu Lys Gly Tyr Ser
245 250 255
Val Ser Glu Gln Thr Pro Val Val Ala Gly Gln Leu Gln Pro Leu Cys
260 265 270
Gly Pro Gly Thr Ser Gly Gly Asn Leu Ile Arg Glu Ala Thr Pro Ser
275 280 285
Gln Arg Asp Trp Leu Gln Leu His Ser Cys Leu Phe Gly Leu Phe Pro
290 295 300
Leu Glu Ser Pro Leu Tyr Lys Ile Leu Ala Ala Met Asp Trp Leu Ser
305 310 315 320
Leu Phe Trp Phe Ser Leu Ile Tyr Lys Ser Ile Ser Ser Leu Tyr His
325 330 335

Ile Ile Asn Lys Ser Phe Leu Lys Lys Leu Phe Cys Phe Gln Ile Met
340 345 350

Gln Ser Gly His Val Gly Glu Arg Pro Leu Cys Ala Phe Leu Cys Phe
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Ile Ser Ser Phe Ala Phe Thr Ser Tyr Thr Leu Ser Ala Met Asn Thr
35 40 45

Glu Lys Gln Asp Thr Gln Gly Leu Ile Val Cys Ser Phe His His Pro
50 55 60

Ser Met Gly Asp Ser Asp Val Pro Gly Val Glu Glu Glu Arg Ser Ser
65 70 75 80

Phe Leu Gly Met Leu Gln Asn Thr Thr Thr Lys Trp Leu Lys Thr Thr
85 90 95

Glu Met Ser Val Cys Leu Thr Leu Leu Ala Ala Arg Cys Arg Val Cys
100 105 110

Val Cys Val Cys Val Cys Val Cys Val Cys Val Cys Val Ile Phe Ser
115 120 125

Arg Ala Leu Lys Ala Ser His Ser Phe Pro Lys Cys Leu Val Leu Pro
130 135 140

Glu Met Glu Asp Gly Trp Ser Ser Ser Phe Ser Val Cys Ile Ser Ser
145 150 155 160

Pro Leu Cys Val Cys Leu Phe Leu Gln Gly His Cys Gly Ser Phe Thr
165 170 175

Trp Gly Leu Leu Thr Ser Val Thr Ser Met Thr Leu Glu Ile Ile Leu
180 185 190

Ser Lys Lys Thr Thr Leu Gly Gly Thr Gly Thr Thr Ile Ala Cys Tyr
195 200 205

Arg Lys Leu Cys His Val Thr Phe Val Arg Ile Thr Ala Leu Thr Ser
 210 215 220
 Ala Ser Arg Leu Arg Leu Tyr Leu Tyr Tyr Ile Arg Leu Leu Asn Val
 225 230 235 240
 Lys Val Ser Ala Glu Ala Pro Arg Val Thr Val Tyr Leu Ser Lys His
 245 250 255
 Gln Leu Leu Leu Gly Ser Ser Asn Pro Cys Val Ala Gln Ala Leu Gln
 260 265 270
 Val Gly Thr Asn Ser Leu Gly Arg His Lys Arg Gln Ala Asn Val Ile
 275 280 285
 Gly Tyr Ser Ser Thr Ala Val Tyr Leu Ala Ser Ser His Trp Arg Val
 290 295 300
 Pro Ser Tyr Ile Lys Phe Trp Leu Pro Trp Ile Gly Val Cys Phe Gly
 305 310 315 320
 Phe Leu Tyr Thr Asn Leu Phe Lys Val Val Tyr Ile Thr Tyr Asn Lys
 325 330 335
 Ile Asn Leu Phe Lys Asn Phe Phe Val Phe Lys Ser Cys Lys Ala Lys
 340 345 350
 Val Thr Glu Lys Asp His Asp Cys Val Pro Phe Tyr Ala Leu Gly Leu
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 370 375 380
 Lys Ser Lys Pro Arg
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 35 40 45
 Lys Ile Gln Lys Asn Arg Thr His Arg Gly Ser Ala Ala Ser Thr Ile
 50 55 60
 His Pro Trp Gly Thr Pro Glu Met Tyr Pro Val Ser Lys Arg Ser Ala

65		70		75		80
Leu Ala Ser Gly Cys Ser Asn Lys Ile Leu Gln Leu Ser Gly Ser Lys	85		90		95	
Gln Gln Lys Cys Leu Ser Val Ser His Cys Trp Gln Pro Asp Val Val	100		105		110	
Cys Val Cys Val Cys Val Cys Val Cys Val Cys Val Cys Val Cys Arg	115		120		125	
Ser Ser Leu Glu Leu Asn Arg Leu Leu Thr Ala Ser Arg Ser Val Trp	130		135		140	
Ser Phe Leu Arg Trp Lys Met Val Gly His Leu His Ser Val Ser Ala	145		150		155	160
Phe His Arg Pro Ser Val Cys Val Ser Phe Tyr Lys Asp Thr Val Gly	165		170		175	
His Ser Pro Gly Ala Ser Leu Pro Gln Pro Gln Pro Trp Lys Ser Phe	180		185		190	
Ser Leu Lys Arg Gln His Leu Glu Val Arg Gly Leu Leu His Val Ile	195		200		205	
Glu Ser Tyr Val Thr Leu Ser Glu Gln Arg Tyr Lys Pro His Glu Leu	210		215		220	
Gln Asp Leu Asp Tyr Asp Thr Cys Thr Thr Leu Gly Asn Cys Leu Thr	225		230		235	240
Leu Lys Cys Gln Leu Arg His Leu Lys Gly Leu Gln Cys Ile Ala Asn	245		250		255	
Thr Ser Cys Cys Trp Ala Ala Pro Thr Pro Val Trp Pro Arg His Phe	260		265		270	
Arg Trp Glu Leu Thr His Gly Gly Ile Asn Ala Lys Pro Thr Leu Val	275		280		285	
Thr Ala Pro Gln Leu Phe Ile Trp Pro Leu Pro Ile Gly Glu Ser Leu	290		295		300	
Val Ile Asn Phe Gly Cys His Gly Leu Val Glu Phe Val Leu Val Phe	305		310		315	320
Phe Asn Ile Gln Ile Tyr Leu Lys Phe Ile Ser His Ile Ile Asn Lys	325		330		335	
Ile Phe Phe Lys Lys Thr Phe Leu Phe Ser Asn His Ala Lys Leu Arg	340		345		350	
Ser Arg Arg Arg Lys Thr Met Thr Val Cys Leu Phe Met Leu Trp Val	355		360		365	
Trp Ser Pro Phe Tyr Phe Asn Thr Met Val Ser Tyr Tyr Arg Lys Ser						

370 375 380

Asn Pro Ser Gln Asp
385

<210> 25
<211> 387
<212> PRT
<213> Mus sp.

<400> 25

Leu	Ser	Trp	Leu	Gly	Phe	Asp	Phe	Leu	Tyr	Gln	Leu	Thr	Ile	Val	Leu
1				5					10					15	
Lys	Tyr	Asn	Gly	Asp	Gln	Thr	Gln	Ser	Ile	Lys	Arg	His	Thr	Val	Met
			20					25					30		
Val	Phe	Leu	Leu	Arg	Asp	Leu	Ser	Phe	Ala	Phe	Glu	Asn	Lys	Lys	Val
		35					40					45			
Phe	Leu	Lys	Lys	Ile	Tyr	Leu	Phe	Ile	Ile	Cys	Asp	Ile	Asn	Tyr	Phe
	50					55					60				
Lys	Ile	Cys	Ile	Leu	Lys	Lys	Thr	Lys	Thr	Asn	Ser	Thr	Asn	Pro	Trp
65					70					75					80
Gln	Pro	Lys	Phe	Tyr	Ile	Thr	Arg	Asp	Ser	Pro	Met	Gly	Arg	Gly	Gln
				85					90					95	
Ile	Asn	Ser	Cys	Gly	Ala	Val	Thr	Asn	His	Val	Gly	Leu	Ala	Phe	Met
			100					105					110		
Pro	Pro	Val	Ser	Ser	His	Leu	Lys	Cys	Leu	Gly	His	Thr	Gly	Val	Gly
		115					120					125			
Ala	Ala	Gln	Gln	Gln	Leu	Val	Phe	Ala	Gln	Ile	His	Cys	Asn	Pro	Leu
	130					135					140				
Arg	Cys	Leu	Ser	His	Phe	Asn	Val	Lys	Gln	Leu	Pro	Asn	Val	Val	Gln
145					150					155					160
Val	Ser	Ser	Lys	Ser	Ser	Ser	Gly	Leu	Arg	Cys	Tyr	Ser	His	Glu	Ser
			165						170					175	
His	Val	Thr	Leu	Ser	Ile	Thr	Cys	Tyr	Ser	Ser	Pro	Arg	Thr	Ser	Lys
			180					185					190		
Cys	Cys	Leu	Phe	Arg	Glu	Asn	Asp	Phe	Gln	Gly	His	Gly	His	Gly	Lys
		195					200					205			
Glu	Ala	Pro	Gly	Glu	Pro	Thr	Val	Ser	Leu	Lys	Glu	Thr	His	Thr	Glu
	210					215					220				
Gly	Arg	Asn	Ala	Asp	Thr	Glu	Arg	Pro	Thr	Ile	Phe	His	Leu	Arg	Lys
225					230					235					240

Asp Gln Thr Leu Arg Glu Ala Val Arg Ser Leu Phe Ser Ser Arg Glu
 245 250 255
 Asp Leu His Thr His Thr His Thr His Thr His Thr His Thr His Thr
 260 265 270
 His Thr Thr Ser Gly Cys Gln Gln Cys Glu Thr Asp Arg His Phe Cys
 275 280 285
 Cys Phe Glu Pro Leu Ser Cys Ser Ile Leu Leu Glu His Pro Glu Ala
 290 295 300
 Arg Ala Leu Leu Leu Leu Tyr Thr Gly Tyr Ile Ser Gly Val Pro His
 305 310 315 320
 Gly Trp Met Val Glu Ala Ala Asp Tyr Gln Pro Leu Cys Val Leu Phe
 325 330 335
 Phe Cys Ile His Leu Cys Leu Ser Val Thr Cys Lys Leu Gly Lys Gly
 340 345 350
 Arg Asn Lys Gln Leu Leu Ile Val Asn Asn Ser His Asn Asp Tyr Asn
 355 360 365
 Ile Leu Cys Asn Phe Val Ser Asn Ile Leu Gln Met Phe Cys Asp Trp
 370 375 380
 Ala Leu Pro
 385

<210> 26
 <211> 389
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 <213> Mus sp.

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 Lys Met Glu Thr Arg Pro Lys Ala Lys Gly Thr Gln Ser Trp Ser Phe
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 Ser Tyr Val Thr Leu Ala Leu His Asp Leu Lys Thr Lys Lys Phe Phe
 35 40 45
 Lys Arg Phe Ile Tyr Leu Leu Tyr Val Ile Thr Thr Leu Asn Arg Phe
 50 55 60
 Val Tyr Arg Lys Pro Lys Gln Thr Gln Pro Ile His Gly Ser Gln Asn
 65 70 75 80
 Phe Ile Leu Gly Thr Leu Gln Trp Glu Glu Ala Lys Thr Ala Val Glu
 85 90 95

Leu Pro Ile Thr Leu Ala Trp Arg Leu Cys Leu Pro Asn Glu Leu Val
 100 105 110
 Pro Thr Ser Ala Trp Ala Thr Gln Gly Leu Glu Leu Pro Ser Asn Asn
 115 120 125
 Trp Cys Leu Leu Arg Tyr Thr Val Thr Leu Gly Ala Ser Ala Asp Thr
 130 135 140
 Leu Thr Leu Ser Ser Tyr Leu Met Tyr Arg Tyr His Asn Leu Ser Leu
 145 150 155 160
 Glu Ala His Glu Val Tyr Asn Ala Val Ile Leu Thr Lys Val Thr His
 165 170 175
 Ser Phe Leu His Ala Ile Val Val Pro Val Pro Pro Ser Val Val Phe
 180 185 190
 Leu Glu Arg Met Ile Ser Arg Val Ile Glu Val Thr Glu Val Arg Arg
 195 200 205
 Pro Gln Val Asn Asp Pro Gln Cys Pro Cys Lys Lys Arg His Thr Gln
 210 215 220
 Arg Gly Asp Glu Met Gln Thr Leu Asn Glu Asp Asp Gln Pro Ser Ser
 225 230 235 240
 Ile Ser Gly Arg Thr Lys His Phe Gly Lys Leu Glu Ala Tyr Phe Arg
 245 250 255
 Ala Leu Glu Lys Ile Tyr Thr His Thr His Thr His Thr His Thr His
 260 265 270
 Thr His Thr His Thr Arg His Leu Ala Ala Ser Ser Val Arg Gln Thr
 275 280 285
 Asp Ile Ser Val Val Leu Ser His Leu Val Val Val Phe Cys Ser Ile
 290 295 300
 Pro Arg Lys Leu Glu Arg Ser Ser Tyr Ser Thr Pro Gly Thr Ser Gln
 305 310 315 320
 Glu Ser Pro Met Asp Gly Trp Trp Lys Leu Gln Thr Ile Ser Pro Cys
 325 330 335
 Val Ser Cys Phe Ser Val Phe Ile Tyr Ala Tyr Asp Lys Val Leu Val
 340 345 350
 Asn Ala Lys Glu Glu Ile Asn Asn Tyr Ile Thr His Ile Arg Met Ile
 355 360 365
 Ile Ile Tyr Cys Val Thr Leu Ala Ile Tyr Cys Asn Lys Cys Phe Ala
 370 375 380
 Thr Gly Pro Ser Leu
 385

<400> 27

Val Leu Lys Trp Arg Pro Asp Pro Lys His Lys Lys Ala His Ser His
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Lys Lys Asp Leu Phe Ile Tyr Tyr Met Tyr Lys Leu Leu Ile Asp Leu
50 55 60

Ile Leu Tyr Asn Gly Leu Ser Asn Gly Lys Arg Pro Asn Lys Gln Leu
85 90 95

Ser Phe Pro Pro Glu Val Pro Gly Pro His Arg Gly Trp Ser Cys Pro
115 120 125

Leu Thr Leu Arg Ala Val Thr Cys Ser Thr Gly Ile Ile Ile Val Leu
145 150 155 160

Ile Ala Phe Tyr Asn Met Leu Ser Pro Tyr Leu Gln Val Leu Ser Phe
180 185 190

Thr His Ser Val Leu Val Lys Arg Asp Thr His Arg Gly Ala Met Lys
210 215 220

Asn Thr Ser Gly Ser Cys Glu Lys Pro Ile Leu Glu Leu Arg Arg Ser
245 250 255

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260						265						270					
Asp	Ile	Trp	Leu	Pro	Ala	Val	Asp	Arg	Gln	Thr	Phe	Leu	Leu	Phe	Ala		
275						280						285					
Thr	Leu	Tyr	Phe	Val	Arg	Ala	Ser	Leu	Gly	Ser	Ser	Ala	Pro	Leu	Thr		
290						295						300					
Leu	His	Arg	Val	His	Leu	Arg	Ser	Pro	Pro	Trp	Met	Asp	Gly	Gly	Ser		
305						310						315				320	
Cys	Arg	Leu	Ser	Ala	Pro	Val	Cys	Pro	Val	Phe	Leu	Tyr	Ser	Phe	Met		
325						330						335					
Leu	Met	Ile	Lys	Cys	Asn	Leu	Ile	Arg	Gln	Arg	Lys	Lys	Thr	Thr	Thr		
340						345						350					
Asn	Ser	Lys	Leu	Thr	Leu	Glu	Leu	Tyr	Thr	Val	Leu	Cys	Lys	Gln	Tyr		
355						360						365					
Thr	Ala	Ile	Asn	Val	Leu	Arg	Leu	Gly	Pro	Pro							
370						375											